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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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11/06/2001

Paul Kalapathy

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32294

7590

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EXAMINER

CHO, HONG SOL

ART UNIT

PAPER NUMBER

2662

DATE MAILED: 01/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/985,763

Applicant(s)

KALAPATHY ET AL.

Examiner

Hong Cho

Art Unit

2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This office action is in response to the amendment filed on 11/01/2005. Claims 1-21 are pending in the instant application.

Claim Rejections - 35 USC § 112 Second Paragraph

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 7-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re claim 7, reference is made to “a table means...”, “a cache means...”, and “a search engine means...”, implying that these claimed means are different from the table, the cache and the search engine specified in claim 1. It is, however, not clear what structures in the specification correspond to these means.

Re claim 8, reference is made to “a search stage zero segment means...” and “a search stage one segment means...”, implying that these claimed means are different from the search stage zero segment and the search stage one segment specified in claim 2. It

is, however, not clear what structures in the specification correspond to these means.

Claims 8-12 depend on claim 1 are similarly rejected.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(b) that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 7, 13 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Spinney (US 5414704).

Re claims 1, 7, 13 and 16, Spinney discloses a table search device comprising a controller (*a search engine*, figure 1a, element 10) connected to a packet memory with translation and hash tables (*a table having a plurality of entries*, figure 1a, element 21) (*a search engine connected to the table and the cache*) and a content addressable memory (CAM) having a list of addresses (*a cache having a subset of entries of the plurality of entries of the table*, figure 1a, element 23, column 9, lines 6-12). Spinney discloses a controller performing an address lookup procedure first with the CAM and if a match is not found in the CAM, then perform the lookup procedure with the packet memory (*a search engine configured to first search said cache and then search said table based on search results of said cache, said search engine connected to said table and said cache*,

column 16, lines 15-25). Spinney inherently discloses a search engine configured to search both the cache and the table in a number of search cycles.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3, 4, 9, 10, 14, 15, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spinney

Re claims 3, 4, 9, 10, 14, 15, 18, and 19, Spinney discloses all of the limitations of the base claim, but fails to disclose that the first number of search cycles used to search the cache is less than or equal to the second number of cycles used to search the table. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Spinney to perform an address lookups with a less or equal number of search cycles when using a table in the CAM than the second number of search cycles using tables in the packet memory since the address table size of CAM is smaller than that of the packet memory. The motivation is to provide faster source and destination address lookups for incoming packets by looking a list of addresses in CAM first and then searching a relatively larger table in packet memory if match is not found.

8. Claims 2, 5, 6, 8, 11, 12, 17, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spinney in view of Michels (US 6453358).

Re claims 2, 8 and 17, Spinney discloses a controller configured to performing an address lookup procedure first with the CAM and if a match is not found in the CAM, then perform the lookup procedure with the packet memory (*a search engine configured to first search said cache in a first number of search cycles and then search said table in a second number of search cycles based on search results of said cache, said search engine connected to said table and said cache*, column 16, lines 15-25) but fails to disclose a search engine comprising a search stage zero segment connected to the cache and a search stage one segment connected to the search stage zero segment and the table. Michels discloses a search engine with a binary search engine (*a search stage zero segment*, figure 3, element 66) connected to a stage 1 memory (*cache*, figure 3, element 70) and a binary engine (*a search stage one segment*, figure 3, element 68) connected to the first binary search engine (figure 3, element 66) and primary memory (*table*, figure 3, element 58). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Spinney to perform an address lookup procedure of Michels by utilizing separate search stages. The motivation is to provide faster source and destination address lookups for incoming packets by looking a list of addresses in CAM first and then searching a relatively larger table in packet memory if match is not found.

Re claims 5, 6, 11, 12, 20, and 21, Spinney discloses all of the limitations of the base claim, but fails to disclose that the first number of search cycles used to search the cache is less than or equal to the second number of cycles used to search the table. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Spinney to perform an address lookups with a less or equal number of search cycles when using a table in the CAM than the second number of search cycles using tables in the packet memory since the address table size of CAM is smaller than that of the packet memory. The motivation is to provide faster source and destination address lookups for incoming packets by looking a list of addresses in CAM first and then searching a relatively larger table in packet memory if match is not found.

Response to Arguments

9. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong Cho whose telephone number is 571-272-3087. The examiner can normally be reached on Mon-Fri during 7 am to 4 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-3088.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

hc

Hong Cho
Patent Examiner
12/28/2005



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